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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029.891	12/21/2001	Richard C. Willson III	2000-046CON2	5096

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EXAMINER

SODERQUIST, ARLEN

ART UNIT

PAPER NUMBER

1743

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/029,891

Applicant(s)
Willson, III

Examiner
Arlen Soderquist

Art Unit
1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 8-9 6) ☐ Other:

1. The disclosure is objected to because of the following informalities: the status of the parent applications should be updated.

Appropriate correction is required.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-32 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the independent claims one or more temperature sensors is required to be in thermal communication with each of the plurality of catalysts. Also in claim 8 the temperature sensors are required to be located in the vicinity of the candidate catalysts. This is not supported by the specification as originally filed because the specific temperature sensors taught are non-contact temperature sensors. Page 3 lines 7-8 teach that the temperature change in the vicinity of the catalyst is observed by thermographic techniques as an example. The infrared camera is separated from the reactor by infrared transparent windows (see figures). Page 25 lines 2-3 teaches acoustic pyrometry as an additional way to measure temperature. Relative to this applicant is directed to the cited Zhu abstract which teaches that acoustic tomography (pyrometry) is a noncontact and nondestructive measurement for determining temperature. Thus the specific temperature measuring devices of the instant specification are not located adjacent to or in thermal communication with the catalyst candidates and the limitation is not supported by the original specification. For examination purposes the claims will be treated with their full scope.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1, 9-13, 18-20, 22-25, 27-29 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen in view of Carlson, Kulkova, Schödel (DD 234942) or Temkin. In the paper Jensen teaches a deactivation reactor for catalyst screening and evaluation. The deactivation reactor is shown in figures 1-2 and includes a plurality of catalyst containing baskets supported within a common reactor. On page 796, the first and last paragraphs under the introduction heading teach the simultaneous evaluation of several catalyst samples in the deactivation reactor. The paragraph bridging pages 797-798 teaches the gas mixture used in the deactivation reactor along with the specifics on the catalysts tested. It is important to note that three different catalysts were used. Table 1 shows the composition of two catalysts. The fact that both were in the reactor during the same times can be seen from figure 5 showing that the 410 and CC9 catalysts were present during runs D and E. Figure 2 shows the temperature change at several different times -- 2, 3, 44, 54 and 107 hours. The temperature measurement would have required some form of temperature sensor (thermocouple, T in figure 1), but does not specifically teach the position of a sensor or tubes containing the catalyst.

In the paper Carlson presents apparatus and a microactivity test for measuring low temperature activity of auto exhaust catalysts. A micro-activity test is described in which differential thermal analysis is used to evaluate rapidly the ability of an auto exhaust catalyst to initiate and sustain combustion of a synthetic exhaust mixture. The study shows the flexibility of the test in that it provides direct comparison of experimental catalysts with inert standards, standard catalysts, or other experimental catalysts. Data are presented that demonstrate the

capabilities of the test, the limitations of the test, and the hazards of over-interpretation of test results. Figure 1 shows the flow apparatus used.

In the paper Kulkova presents apparatus for testing catalysts for the oxidation of ethylene to ethylene oxide. A tubular reactor for the simultaneous testing of ≤ 5 catalyst samples (5 cc. each) under isothermal conditions is described. In the oxidation of C_2H_4 at $220-320^\circ$, a Ag catalyst with Se promoter was used for ≤ 2800 hours with good results, the catalyst productivity being between 115 and 330 g./l. hour. The reaction products were analyzed by gas chromatography in a 200-mm. column, with polyethylene glycol sebacate supported on Celite-545. Pages 2-4 of the translation describe the apparatus including the presence of thermocouples (paragraph bridging pages 2-3).

In the published application Schödel teaches method and process for determination of catalyst activity. Catalyst activity is routinely, rapidly, and accurately monitored in a sampling-testing system in which 3-5 samples, containing 0.05-2 g catalyst each, are heated separately and simultaneously in a radiation oven, separate 2-30 L/h gas flows (containing reactants and withdrawing products) are passed through the samples, and the products are withdrawn and separately injected for analysis; each sample has a separate temperature-measuring element and the temperature of each sample can be independently controlled and monitored by a rotating dial. Thus, 3 samples (containing 200 mg each) of a Pt/Al_2O_3 alkane reforming catalyst were reduced in hydrogen and tested for reforming of heptane (at 1.15 g/g catalyst-h flow); the 3 samples had heptane conversions and yields of aromatic hydrocarbons of 46.4 ± 0.7 and 22.9 ± 0.4 , 28.7 ± 0.9 and 12.4 ± 0.2 , and 36.9 ± 0.8 and 23.5 ± 0.4 mol%.

In the abstract Temkin presents an ideal-displacement laboratory reactor. A laboratory reactor is described having a set of small diameter tubes. Catalyst granules or pellets are placed into the tubes, diluted with an inert material, and the catalytic activity for a heterogeneous reaction can be investigated simultaneously for several catalysts, depending on the number of tubes present. The wall of the tubes are equipped with thermocouples. Isothermal conditions are

obtained by passing the gas through the system; the catalyst acquires the temperature of the tube walls.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a thermocouple as taught by Carlson, Kulkova, Schödel or Temkin for each catalyst sample in the Jensen method because it would have allowed each sample to be simultaneously monitored during the catalyst evaluation and testing as taught by Carlson, Kulkova, Schödel and Temkin.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-35 of U.S. Patent No. 6,333,196. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims are of a scope which completely encompasses the patented claims. For this reason one cannot practice the patented claims without infringing the claims in the instant application and the inventions are not distinct. The instant invention claims temperature sensors, but column

3 lines 1-8 and column 4 lines 45-55 of the patent make it clear that the infrared camera of the patented claims is a temperature sensor.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additionally cited art was cited in the parent or is related to the temperature or catalyst analysis being claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arlen Soderquist whose telephone number is (703) 308-3989. The examiner's schedule is variable between the hours of about 5:30 AM to about 5:00 PM on Monday through Thursday and alternate Fridays.

For communication by fax to the organization where this application or proceeding is assigned, (703) 305-7719 may be used for official, unofficial or draft papers. When using this number a call to alert the examiner would be appreciated. Numbers for faxing official papers are 703-872-9310 (before finals), 703-872-9311 (after-final), 703-305-7718, 703-305-5408 and 703-305-5433. The above fax numbers will generally allow the papers to be forwarded to the examiner in a timely manner.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



May 16, 2003

ARLEN SODERQUIST
PRIMARY EXAMINER